1876MNRAS..36..277W

Extract from a Letter addressed to Mr. Ranyard on Drawings of Coggia's Comet. By R. S. Newall, Esq.

As you think the drawings of Coggia's Comet by Mrs. Newall, which were made at Ferndene on July 12 and 14, 1874, would be worth recording in the *Monthly Notices*, I beg to send them to you with the following remarks :—

I had observed the Comet on June 7 and 8. It was then a luminous mass with a distinct stellar nucleus. I had not another opportunity of seeing it till the night of Sunday, July 12, when we had a clear sky, but accompanied with the disadvantage of our usual, at that time of the year, highly illumined northern sky.

Fig. 1 is a very fair representation of what we saw. The nucleus was very bright, with a disk tolerably well defined. In front of the nucleus was a fan-shaped light, which seemed to arise from the overlapping, or duplication of the two tails, which streamed away behind for a length of about 15°, forming, as it were, two luminous veils, delicate, transparent, and flickering, leaving between them a black space, well defined up to the nucleus. The edges of these tails appeared to be brighter than the middle part, and crossing over the nucleus they formed the sides of the fan, the outside edges, also crossing over, formed the top of the fan and head of the comet. In front of this was another covering, semicircular and brightest in the preceding part, and in front of that was again another fainter envelope or cloud. The colour of the comet was greenish yellow. A small star was visible through the tail.

The next view we got of the Comet was on Tuesday, July 14, when a wonderful change had taken place. This is extremely well represented by fig. 2, which was made by Mrs. Newall, and was so exact that I did not touch it. Here the nucleus is still very distinct. The two streams of the tail have separated and become shorter, leaving a wider dark space between, while from the two corners of the fan proceed two anthenæ, which appear to be projections of the inner sides of the tails, and preceding these is still a luminous cloud.

On both nights the effect of motion was conveyed in a remarkable manner by the flickering of the tail.

Note on the Duplicate Structure of Coggia's Comet.

By A. C. Ranyard, Esq.

The drawings that were made of Coggia's Comet during the early part of July 1874 show that although there was but one small almost stellar nucleus there were two sets of parabolic

1876MNRAS..36..279R

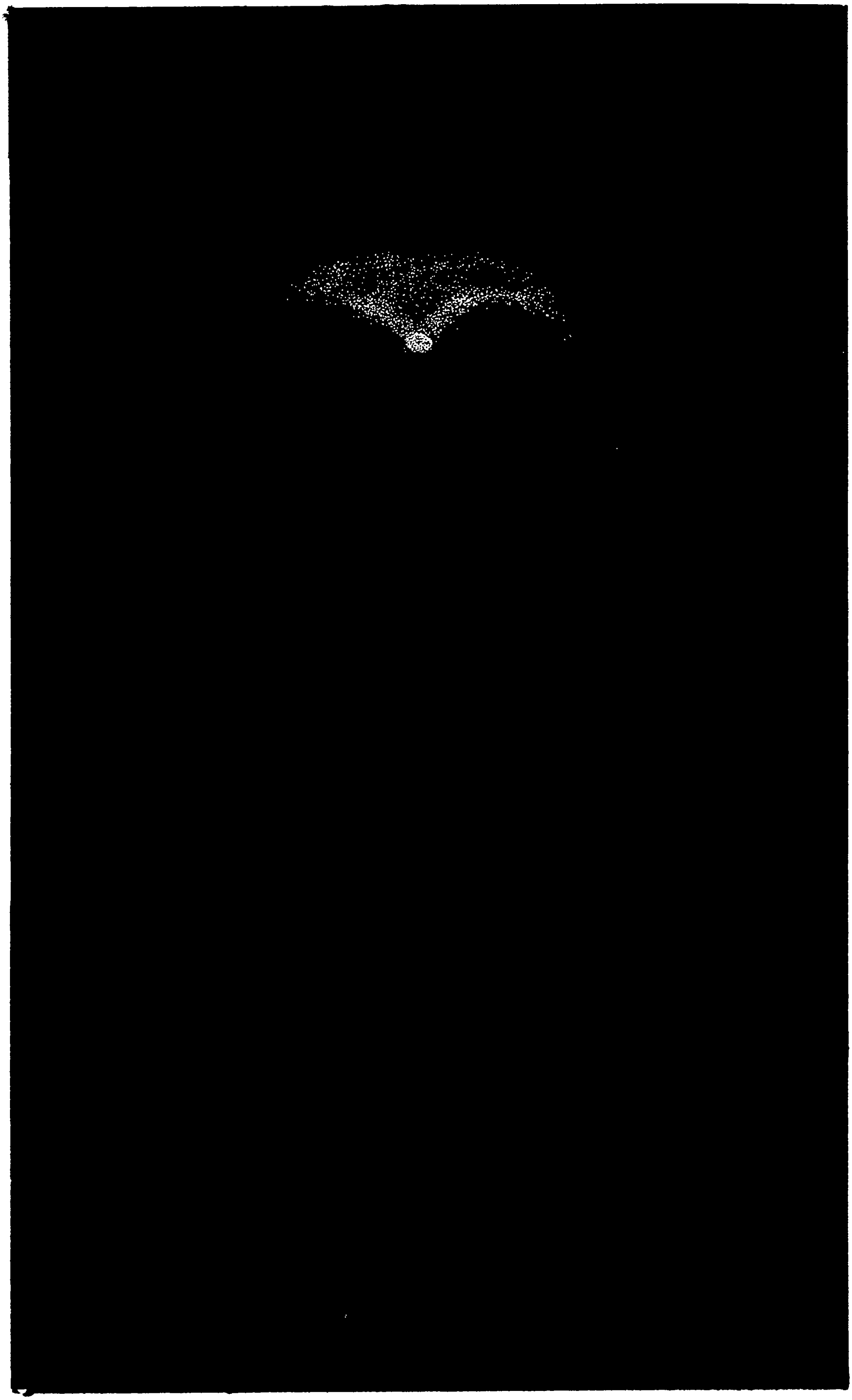
envelopes situated side by side, and apparently overlapping one another just in front of the nucleus. These were well shown in the drawings made by Mr. Huggins and Mr. Christie. They are also to be seen in Mrs. Newall's drawing No. 1, and they were described by Mr. Lockyer in a letter, published in *The Times* of July 16, on the structure of the Comet.

On July 14—the last evening that the head of the Comet was visible in England—Mr. With, at Hereford, and Mrs. Newall, at Gateshead, appear to have observed, in addition to the above-mentioned double structure, two faint parabolic arcs situated symmetrically with regard to the nucleus, but with their axes separated by a much greater interval than that between the other, and smaller, arcs.

A lateral disruption was evidently going on in the structure of the Comet: not so complete as the disruption which took place in Biela's Comet during its approach to perihelion in 1846, for in this instance the nucleus still remained single, and the distance between the axes of the inner arcs remained about the same as before. After Coggia's Comet had passed through perihelion, and when it was again visible in the Southern hemisphere, the inner duplicate structure was still visible, but the outer arcs had been dissipated. Possibly, such disruptions in the structure of comets are more common than has been suspected. Kepler seems to have believed that the Comet of 1618 split into two, for which Pingre, in his *Cométographie*, vol. ii. p. 7, ridicules him. He says: "Kepler a soupçonné que ce n'étoit qu'une seule et même comète que c'étoit divisé en deux: *quandoque bonus dormitat Homerus.*"

The Plates in the present number represent the sketch referred to in Mr. With's paper, and the two drawings referred to in Mr. Newall's letter.

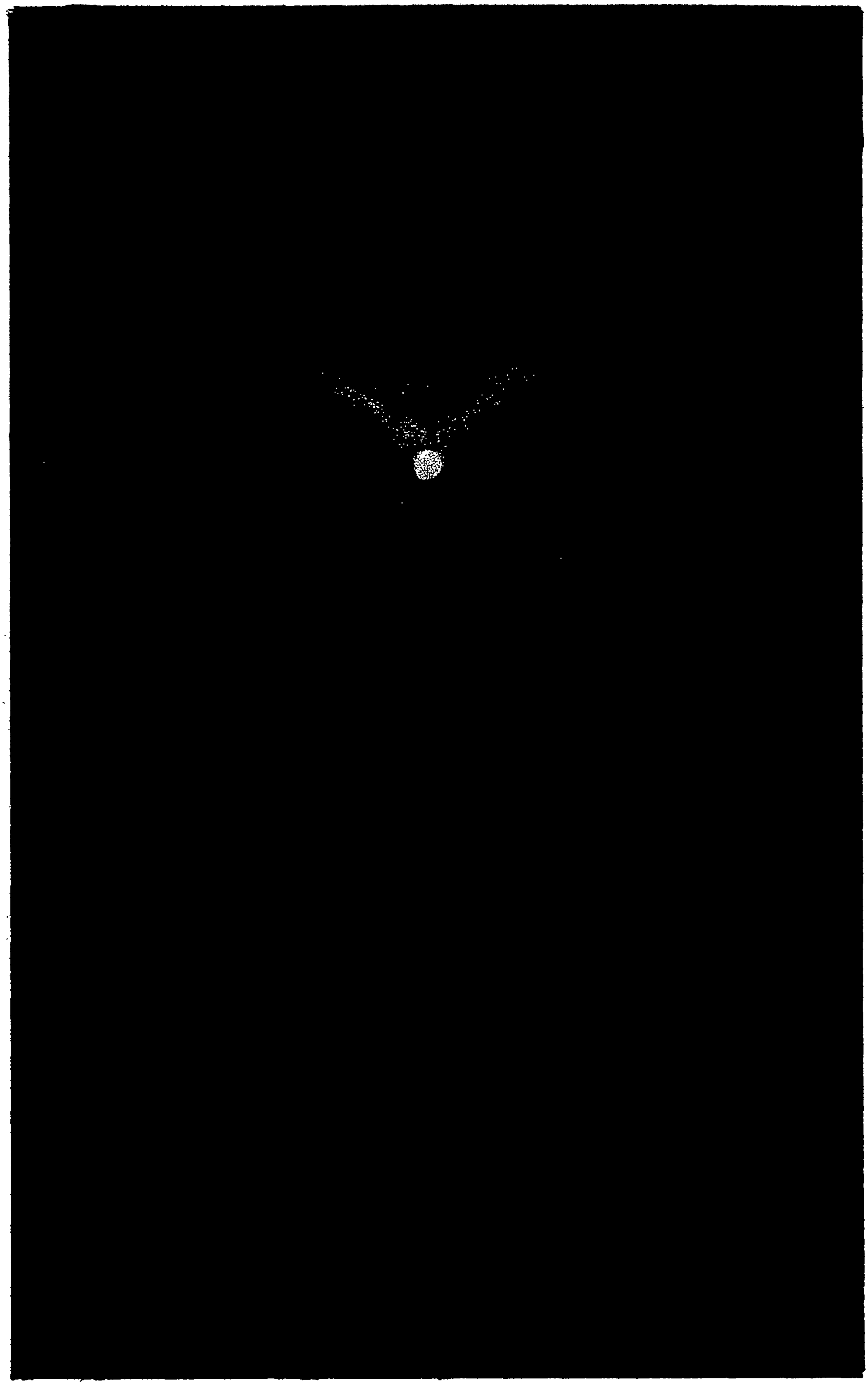
1876MNRAS..36..279R



COGGIA'S COMET. 1874. JULY 12. 11 P.M.

as drawn by M^{rs} Newall.

1876MNRAS..36..279R



COGGIA'S COMET. 1874. JULY 14. 10 P.M.

as drawn by Mrs Newall.